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courage and faith. Science communicators usually communicate to non-scientific audience. Communicating science to the public comprises diverse approaches such as public talks, debates, exhibitions, publications, science theatre and television documentaries. Often, these activities form a part of a wider campaign to engage people in science. In recent years, the volumes of scientific information and news have grown rapidly, but the coverage in the media has not grown that exponentially. There is a need to analyze the coverage given to science news / information in Indian media with special emphasis on community media. Now that radio has got revival, it has gained speed of conveying information which no other medium has. The news/information on community media has a style and pattern of its own which is quite different from a report in the press. Community media can put across 'hot' news to create awareness, though awareness to action calls for an integrated approach to development. Of late, people are particularly interested in health and environment, and this has been reflected through increased coverage. The scope for specializing in environment communication and health communication is increasing. The community media of diverse nature – be it VKCS, VRCs, All India Radio, campus community radio, NGO community radio, and educational radio such as Gyan Vani makes efforts in imparting and understanding scientific temper. The paper looks into various possibilities of communicating science effectively through VRCs, particularly in terms of updating the people with the latest in science and technology. While, community media concentrates on broadcasting phone-in programmes, talk-shows, drama, discussions, symposiums, and debates on subjects of social interest, health, developmental activities and civic consciousness. The paper discusses the various modes of communication by the use of community media.

Robotics as a Tool to Increase the Motivation Levels in Problematic Students

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Motivation

The study described in this work was done by students of the Training and Education Courses (CEFs) in Informatics Operators of EB 2,3 Gonçalo Sampaio in Póvoa de Lanhoso during the academic year 2008/09. The study was conducted with two classes, with a total of 23 students. These students are aged between 15 and 18 years and the majority are males with only 4 girls. These students were not very motivated to attend school successfully, since they were students that had difficulties and failed one or more years. The CEFs were created to allow these students to finish their academic studies, in a less constrained pedagogical environment, that provided access to professional studies.

Objectives

Given the special situation of these students, the main aim of the project was to study if the introduction of Robotics as a new tool would provide an increased in the level of motivation. Also, since those students are involved in a technological course, the Robotics activities would provide a valuable tool in Technological Education and an added factor in preventing the drop-off numbers. The teachers of the CEFs believed that this was a very interesting idea, but were afraid that the students would lose interest very rapidly, as it has happened before with other activities.

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Description

The study involved two teachers of the school and also the researcher. It was made possible through the provision of 2 hours per week, within the classes of students. Initially, students were involved in a period of approximately 1 month, learning the basics of robotics, particularly in the construction and programming of robots. They built their robots with the help of some available manuals. In each class, three Lego Mindstorms kits were available, so it was necessary to form groups. The students solved a series of exercises of increasing complexity, requiring both the construction of various types of robots as well as an extensive number of programming tasks.

After this continuous period of work, a set of students was selected to participate in the RoboParty, a robotics event in Guimarães, where about 100 teams competed for 3 days building their own robots (with a pre-designed kit by the organization). When it was time to select the students, it was difficult to choose who would attend. Everyone wanted to participate in the event, but we could only take two teams of three students. Given some difficulties in getting the parents' permissions, in the end, only 5 students went.

On the first day of the event, we had access to the kit and a little training to learn to weld. We went to the table and spent the whole day and part of the night welding our kits. This was a painful activity, since it was difficult to see where you had to weld which required very accurate movements. The students managed to perform this step with great efficiency. Afterwards, the students began on programming in Basic, a language new to almost everyone, except for one of the teachers. We all strive to learn this language so that we could program a few steps in our robots. We decided to dress the robots as two dancers typical of the Minho region. One robot was "Manel", the other was "Mary" and we entered the dancing competition, also selecting a typical dance from Minho. More than eighty teams entered the contest, so we were caught by surprise when they announced the first prize for dance and called the name of our team.

In the end of the school year, the students showed their robots to the community. Also, they participated in the National Robotics Festival (4th place in the dance competition) and were invited by two schools (Amares and Santa Maria da Feira) to show their work.

Discussion and conclusions

Since the beginning of our study, and to our surprise, the students were all interested and motivated at work. However, there were some that followed this trend, especially some of the girls that did not enjoy the activity that much. In future studies some care needs to be taken to try to integrate these students.

In the end, we believe this was a very positive experiment in pedagogical terms. In fact, the students were very proud of their endeavours and most of them kept their motivation levels high during the whole study. Some of the students that, before the project, were in risk of dropping out have revealed an interest in following their studies in a technological theme, after this period.

It is undeniable that Robotics makes an excellent tool for the learning of programming concepts and many other engineering and technology related subjects. Also, it provides an innovative, active and constructivist learning environment, promoting project-based learning. It is, therefore, a valuable tool in all levels of learning and with an added value in the context of technology students.